

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Hashem Akhavan-Tafti, R. DeSilva, R.A. Eickholt, C.W. Gundlach, R.S.  
Handley, K.S. Lauwers, M.D. Sandison, W. Xie

Serial No.: 10/715,284 Art Unit: 1639

Filed: Nov. 17, 2003 Examiner: Christopher M. Gross

For: CLEAVABLE SOLID PHASES FOR ISOLATING NUCLEIC ACIDS

Mail Stop Appeals Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY BRIEF UNDER 37 CFR § 41.41(a)(1)**

Sir:

The present REPLY BRIEF is filed in response to an EXAMINER'S ANSWER mailed on January 14, 2008, in response to Appellants APPEAL BRIEF which was filed on October 1, 2007 appealing the Final Rejection of claims 1, 2, 4, 5, 8-12, 22, 23, 27, and 28 which were rejected on prior art grounds and/or for failing to comply with the written description requirement. The Examiner's Answer withdrew the rejection under 35 USC 112, 1<sup>st</sup> paragraph. The rejection under 35 USC 103(a) remains. Appellants provide comments to certain arguments advanced by the Examiner in his Answer in the Remarks section beginning on page 2.

## **REMARKS**

1. For the record, Appellants wish to point out that the Examiner has never indicated which of the two references relied upon, Hughes (1996 Tetrahedron Letters 37: 7595-7598) and Lough et al (US 5,900,481), is the primary reference and which is the secondary. Rejecting claims over reference 1 and reference two rather than using the in view of language is ambiguous. Without an explicit statement of which reference is modifying the other, Appellants have been unsure as to which references methods of use the materials in question are being evaluated for motivation.

2. The Examiner has advanced the view in his Answer that the combination of Hughes (1996 Tetrahedron Letters 37: 7595-7598) and Lough et al (US 5,900,481) renders the claims on appeal obvious since the combined references can be put together to read on a cleavable nucleic acid binding solid phase material formulated as  $RP^+Ph_2$ -Optional Spacer-Trt-Bead (Examiner's Answer, page 8, lines 6-7). This material would electrostatically bind DNA to form a species  $DNA:::RP^+Ph_2$ -Optional Spacer-Trt-Bead. Trt is apparently used to indicate a cleavable Trityl linker group. Appellants note that this is the first time that a construct of this type has been clearly put forth.

It is seen that this proposed material of the Examiner's formulation adds an additional feature to the materials of Lough. Such a material is not encompassed by and can not be arrived at from the teachings of Lough as modified by phosphonium group of Hughes. As the Examiner points out, Lough uses the term "conjugated" to describe the connection of DNA to beads and beads to a solid support and describes different means of conjugation. The means include various embodiments described at e.g. column 3, lines 38-52. Yet the proposed material requires two different means of conjugating the nucleic acid to the bead. As the materials of Lough also

require the bead to be conjugated to a solid support, the proposed material based on Lough would have three means of conjugation. Appellants find no support in Lough for such a material or a reason why one of skill in the art would be motivated to introduce the extra complication. Nor is there motivation in the teachings of Hughes to devise such a material.

3. Appellants note that the newly cited reference by Ching *et al.* supplied with the Examiner's answer relates to the binding of intercalating organometallic complexes to double stranded DNA by and the effect of the charge of the complex on intercalative binding. This mode of binding, while it may be influenced by charge considerations, differs from the binding mode(s) operative in the presently claimed materials. Moreover it is well known that intercalators do not effectively bind single stranded nucleic acids, important components in many of the samples from which the claimed materials would be used to capture nucleic acids. It is at best a debatable proposition in Appellants view whether the teachings of Ching are germane as secondary evidence to support the mechanism of nucleic acid binding in the proposed material of the Examiner's creation and, by implication, Appellants claimed materials. Appellant is prohibited by 37 CFR 41.41 from introducing any new affidavit or evidence in rebuttal, but reserves the right to do so at a later stage of prosecution or in a continuation application if necessary.

## **CONCLUSION**

Appellants continue to maintain that the rejection under 35 USC 103 should be reversed for the reasons enumerated in their Appeal Brief.

Respectfully submitted,

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